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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	}	
	}	
Revision of Part 15 of the Commission's	}	
Rules Regarding Ultra-Wideband	}	ET Docket No. 98-153
Transmission Systems	}	

Reply Comments of Geophysical Survey Systems, Inc.

Geophysical Survey Systems, Inc. (GSSI) submits these further reply comments in response to the Notice of Proposed Rule Making (NPRM), FCC 00-163, in the proceeding referenced above. These comments address the most recent submissions provided to the FCC under this docket, including recommendations and conclusions made in submissions by others suggesting continued rule making in this proceeding. Some of these submissions were based upon recent UWB interference test data provided by NTIA, Stanford University, Marshall Space Flight Center, University of Texas-Austin, Johns Hopkins University/Applied Physics Lab and others. Others have submitted recommendations to the FCC for either a Rule & Order or Further Notice of Proposed Rule Making (FNPRM) based upon the test data.

First of all, GSSI fully supports the comments regarding the necessity and utility of geophysical equipment submitted by Gary R. Olhoeft, PhD, on March 22, 2001. His comments are direct and to the point and should be read in their entirety. The following comments and reply focus on one geophysical technology, namely GPR equipment and its applications.

It should be clear that ground penetrating radar (GPR) is a UWB signal transmitted into the earth or other materials, even fresh water and ice. GPR is not intended for air transmission. GSSI has been in business for 30 years designing, manufacturing and selling GPR systems worldwide. To the best of our knowledge, no GSSI GPR transmission has interfered with other licensed receivers.

During our 30 years of business, GSSI has exported more than half of the GPR units we have manufactured. We note this because the influence of FCC rule making will almost certainly extend beyond the borders of the U.S.

Our top-of-the-line GPR unit, called PathFinder, has two orthogonal (UWB) transmitters with four receivers centered on 400 MHz and a standard commercial Differential GPS system (DGPS) mounted directly on top. The purpose of this system is to accurately detect and map utility pipes in 3D. No special shielding has been added to isolate the DGPS receiver from the GPR transmitters. Even so, location accuracy of two centimeters is maintained throughout hours of survey data collection.

This system works splendidly as evidenced by sales around the world in the past 18 months since product introduction. Multiple units are at work in all continents. Country examples are Taiwan, Argentina, Israel and Germany as well as the U.S. Others, in various publications, have already commented upon the safety aspects and usefulness of this mapping process.

In another application several GPR manufacturers, including GSSI, have introduced new systems to rapidly image targets inside concrete in 3D. The GSSI system operates at 1.5 GHz. These systems are replacing x-ray instruments that are not only more expensive and time consuming but are potentially hazardous to the general public. X-ray imaging systems to image inside concrete are in extensive use around the world.

With this brief background, the following responds to the comments and recommendations made by others who are proposing new rules. Recent recommendations such as "MSSI recommends that the FCC amend Part 15 of the Commission's rules to: allow UWB operation only above 3.1 GHz..." *and* "not consider additional mitigating factors when determining the permissible emission levels and frequencies for UWB operation" ignore the facts described above. We conclude the intent of these 'recommendations' is to put GSSI, other GPR manufacturers and hundreds of service providers in the U.S. out of business.

Not stopping there, these same recommendations go on to conclude that " It has been clearly demonstrated that high PRF (i.e.>100 KHz) UWB emissions are interfering to GPS and federal systems operating below 3.1 GHz...". The PathFinder system and other GPR systems we produce operate at a PRF of 200 KHz. Here again, systems working in the field belie these 'recommendations'.

Additionally MSSI concludes and comments, "To date, the geophysical community has not demonstrated the need to manufacture and sell such devices on an unlicensed basis." This comes from a company that does not participate in this marketplace and apparently has little knowledge of it. To prove this sweeping statement, MSSI, with no knowledge of the facts, points out that U.S. Radar (a distributor of a GPR company from England) was granted a waiver to sell their GPR systems in the U.S. According to MSSI, U.S. Radar has had no sales since. From this assumption MSSI then concludes "that the burden to license such devices would not materially affect the volume of sales anticipated by GPR manufacturers..."!! MSSI apparently failed to read the waiver given U.S. Radar.

The fact of the matter is the waiver granted to U.S. Radar required its customers to contact the FCC prior to each equipment use and to document each individual use of their equipment in the field. *If* U.S. Radar has no sales, it could be more readily concluded it is due to the onerous licensing and reporting requirements of the waiver. With no such licensing and notification requirements, GPR sales of other companies are doing nicely.

In summary, GSSI customers range from government agencies and large corporations to individual entrepreneurs. To provide some sense of the smaller service provider

businesses, GSSI is enclosing an existing 12-minute sales video on CD with four different customers talking about their own uses of GPR equipment. The CD is being submitted as a part of our comments to give reviewers a better idea of the many important uses of GPR and the kind of people that make their living providing services with this equipment. GPR sales and the services of all of our customers will most certainly be eliminated if the MSSI recommendations are implemented.

(Others requiring a copy of the CD can contact GSSI directly at 800-524-3011.)

Respectfully submitted,

Dennis J. Johnson
President

Geophysical Survey Systems, Inc.
13 Klein Drive
North Salem, NH 03073

603-893-1109
Dennis@geophysical.com

Attachment A

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1 CD ROM